

Remarks

The following remarks are submitted to try to clarify what the differences are between the applicants' claimed invention and the art contained in the documents cited by the Examiner in the Final Action. These remarks do not raise totally new issues or require additional searching. It is respectfully requested that the Examiner reconsider the claims in the light of the remarks hereinbelow.

The Examiner has indicated that the outstanding claims remain rejected under 35 USC 103(a) as being unpatentable for obviousness with claims 1-3, 5-10 and 13-15 being unpatentable over Cunningham et al. (US 5,679,116) with Udelhofen et al. (US 4,231,759) as an evidentiary reference for reasons of record, with claims 11 and 12 being unpatentable over Cunningham et al. in view of Malfer et al. (US 5,725,612) for reasons of record, and with claims 1-3 and 5-15 being unpatentable over Malfer et al. in view of Aiello et al. (US 5,006,130) for reasons of record.

Cunningham et al. disclose fuel additive compositions and fuel compositions that can comprise a detergent that is a hydrocarbon having a polyamine attached thereto, a detergent that is a Mannich condensation product, or a mixture of both detergents and a carrier fluid that can be a polyoxyalkylene compound where the amount of the polyoxyalkylene compound present in the additive or fuel composition will correspond to a detergent to carrier fluid weight ratio of about 0.05:1 to 0.5:1 indicating that the polyoxyalkylene carrier fluid can be present at 2 (0.5:1) to 20 (0.05:1) times the amount of the detergent or detergents which, as a % range, is 200% to 2000%.

Udelhofen et al, the evidentiary reference incorporated by reference by Cunningham et al. for preferred Mannich reaction products, describe Mannich reaction products prepared from an amine that is preferably an alkylene polyamine. Udelhofen et al. teach per lines 31-35 of column 3 that for a performance benefit such as intake valve cleanliness that the Mannich condensation product be employed in combination with a carrier fluid at a level per lines 51-56 of column 6 that is at least equal to or 100% of the level of the Mannich condensation product.

Malfer et al. disclose fuel additive compositions and fuel compositions comprising a Mannich base prepared from a hydrocarbyl-substituted hydroxyaromatic compound such as a cresol, an aldehyde, and a polyamine having only one primary or

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secondary amino group. Malfer et al. indicate on lines 19-29 of column 1 that a desirable feature of the Mannich base would be that it perform well with a smaller amount of a carrier fluid than is conventionally used. Malfer et al. teach in the abstract as well as on lines 48-50 of column 5 that for performance benefits such as reduced intake valve deposits and intake valve sticking that the Mannich base be used in combination with a carrier fluid per lines 20-27 of column 8 at a weight ratio of carrier fluid to Mannich base in the range of about 0.3:1 to about 2:1 where the carrier fluid ranges from about 30% to 200% of the Mannich base.

Aiello et al disclose a mixture of an aliphatic polyamine and a carrier component such as a poly(oxyalkylene) alcohol for use in a gasoline fuel composition to reduce intake valve deposits where the weight ratio of a 1050 molecular weight diamine to carrier per lines 39-41 of column 4 can range from about 0.8 to 2.1 indicating that the carrier can be present at a level of about 125% to 48% of the level of the diamine.

The fuel composition of claim 1 of the present invention comprises a hydrocarbon fuel, a combination of detergents comprising a hydrocarbyl-substituted polyamine and a Mannich reaction product, and optionally a fluidizer (carrier fluid) that, when present, is present at less than 20% on a weight basis of the detergent combination. The above described documents whether taken alone or in a combination teach using a combination of a detergent or detergents and a carrier fluid at levels where the carrier fluid is about 30 wt. % or a higher of the detergent or detergents. The above described documents alone or combined do not teach or suggest the claim limitation of the present invention of a detergent combination of a hydrocarbyl-substituted polyamine and a Mannich reaction product used without a fluidizer or with a fluidizer where the fluidizer is less than 20 wt. % of the detergent combination. Examples 4, 5 and 8 in Tables 1 and 2 on page 11 demonstrate the performance benefit of the present invention relative to combinations of detergent and fluidizer where the fluidizer is greater than 20% of the detergent.

Applicants respectfully submit that the outstanding claims are patentable because a prima facie case of obviousness has not been established since the cited documents alone or combined do not teach or suggest all the claim limitations.

From the foregoing remarks, it is submitted that the present claims are in condition for allowance and that the reply to this Office Action is fully responsive. An

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early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the undersigned is suggested.

Any deficiency or overpayment in fees for this Application should be charged or credited to Deposit Account 12-2275 (The Lubrizol Corporation).

Respectfully submitted,  
THE LUBRIZOL CORPORATION

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